

REMARKS

This Amendment is submitted in response to the Office Action dated May 9, 2006. In the Office Action, the Patent Office rejected Claim 19 under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject which Applicant regards as the invention. Additionally, the Patent Office rejected Claims 1, 2, 4, 5 and 7 under 35 U.S.C. §102(b) as being anticipated by *Lewis* (U.S. Patent No. 5,650,613). Further, the Patent Office rejected Claims 1-7 and 18-20 under 35 U.S.C. §102(b) as being anticipated by *Ejiri et al.* (U.S. Patent No. 3,374,477).

Still further, the Patent Office rejected Claim 3 under 35 U.S.C. §103(a) as being unpatentable over *Lewis* in view of *Horton et al.* (U.S. Reissued Patent RE 37,969); rejected Claims 9-12 and 14-16 under 35 U.S.C. §103(a) as being unpatentable over *Lewis* in view of *Abe et al.* (U.S. Patent 4,727,356); rejected Claim 13 under 35 U.S.C. §103(a) as being unpatentable over *Lewis* in view of *Abe et al.* further in view of *Horton et al.*; and rejected Claim 17 under 35 U.S.C. §103(a) as being unpatentable over *Lewis* in view of *Abe et al.* and further in view of *Lee et al.* (U.S. Statutory Registration H277).

Applicant notes with appreciation that the Patent Office indicates that Claim 21 would be allowable if rewritten in

independent form. Accordingly, Applicant added Claim 23 which incorporates the limitations of Claim 21 into Claim 18.

By the present Amendment, Applicant amended Claims 1, 6, 9, 18 and 19 and added new Claim 23. Applicant asserts that the amendments to the claims and the remarks that follow overcome the objection and rejections made by the Patent Office and place the application in condition for allowance. Notice to that effect is requested.

With respect to the rejection of Claim 19 under 35 U.S.C. §112, second paragraph, Applicant amended Claim 19. Applicant submits that the amendments to Claim 19 overcome the rejection by the Patent Office. Notice to that effect is requested.

In the Office Action, the Patent Office rejected Claims 1, 2, 4, 5 and 7 are rejected under 35 U.S.C. §102(b) as being anticipated by *Lewis*. More specifically, the Patent Office alleges that:

Regarding claims 1, 2, 4, 5 and 7, *Lewis* discloses (see Figs. 1 and 2) an apparatus for monitoring position, comprising: a cylinder (24) having walls defining an interior and further having a length defined between a first end and a second end wherein the first end is opposite to the second end of the cylinder; a first wall (25) at the first end of the cylinder; a shaft (18) having a length defined between the first end and the second end wherein a portion of the shaft is within the interior of the cylinder and wherein the shaft moves within the interior of the cylinder; a second wall (27) at the second end of the cylinder; an aperture (30) within the first wall wherein light projects through the aperture into the cylinder; and a sensor (42, 43) at the second wall wherein the sensor detects intensity of light within the interior of the cylinder at the second end

which is not absorbed by the shaft and the interior of the cylinder wherein the intensity of the light detected by the sensor corresponds to a position of the shaft in the interior of the cylinder.

Independent Claim 1, as amended, requires that the second end of the shaft moves between the first end of the cylinder and the second end of the cylinder within the interior of the cylinder. Additionally, Claim 1 requires that the second end of the shaft transposes the interior of the cylinder between the first and the second end of the cylinder. Further, Claim 1 requires that the second position of the second end of the shaft is located between the first position and the second wall at the second end of the cylinder. Moreover, Claim 1 requires that a distance between the second end of the shaft and the second wall corresponds to the intensity of light detected by the sensor at the second wall.

Lewis merely teaches devices which provide measurement of the rotation of a shaft. Additionally, *Lewis* teaches devices which provide real-time information concerning the instantaneous position, alignment, velocity and acceleration of a rotating shaft. Moreover, *Lewis* teaches a housing that encloses a slotted disk having a slot which is continuously varying about the circumference of the disk.

Nowhere does *Lewis* disclose that the second end of the shaft moves between the first end of the cylinder and the second end of the cylinder within the interior of the cylinder as required by Claim 1. Further, nowhere does *Lewis* disclose that the second end

of the shaft transposes the interior of the cylinder between the first and the second end of the cylinder as requires by Claim 1. Still further, nowhere does *Lewis* disclose that the second position of the second end of the shaft is located between the first position and the second wall at the second end of the cylinder as required by Claim 1. Moreover, nowhere does *Lewis* disclose that a distance between the second end of the shaft and the second wall corresponds to the intensity of light detected by the sensor at the second wall as required by Claim 1.

On the contrary, *Lewis* merely teaches that the slotted disk is fixed to rotate with the shaft freely within a housing. Further, *Lewis* teaches that an emission source is located over the first aperture and an emission detector is located over the second aperture. Still further, *Lewis* teaches that "as the shaft rotates, the slot attenuates the emission generated by the emission source". Moreover, *Lewis* teaches that the emission detector detects this attenuated emission and generates a signal which may be processed to determine the rotational position, alignment, velocity and acceleration of the shaft in real time".

Under 35 U.S.C. §102(b), anticipation requires that a single reference discloses each and every element of Applicant's claimed invention. *Akzo N.V. v. U.S. International Trade Commission*, 808 F.2d 1471, 1479, 1 USPQ 2d. 1241, 1245 (Fed. Cir. 1986). Moreover, anticipation is not shown even if the differences between the

claims and the reference are "insubstantial", and one skilled in the art could supply the missing elements. *Structure Rubber Products Co. v. Park Rubber Co.*, 749 F.2d. 707, 716, 223 USPQ 1264, 1270 (Fed. Cir. 1984).

Since *Lewis* fails to disclose the structural elements specifically defined in amended independent Claim 1, Applicant asserts that the rejection of Claims 1, 2, 4, 5 and 7 under 35 U.S.C. §102(b) has been overcome and should be withdrawn. Notice to that effect is requested.

In the Office Action, the Patent Office rejected Claims 1-7 and 18-20 under 35 U.S.C. §102(b) as being anticipated by *Ejiri et al.* More specifically, the Patent Office alleges that:

Regarding claims 1-7, *Ejiri et al.* disclose (see Figs.) an apparatus for monitoring position, comprising: a cylinder (housing; not labeled) having walls defining an interior and further having a length defined between a first end and a second end wherein the first end is opposite to the second end of the cylinder; a first wall (12) at the first end of the cylinder; a shaft (1) having a length defined between the first end and the second end wherein a portion of the shaft is within the interior of the cylinder and wherein the shaft moves within the interior of the cylinder; a second wall (left end wall; not labeled) at the second end of the cylinder; an aperture (for 9) within the first wall wherein light projects through the aperture into the cylinder and a sensor (leftmost instance of 6) at the second wall wherein the sensor detects intensity of light within the interior of the cylinder at the second end which is not absorbed by the shaft and the interior of the cylinder wherein the intensity of the light detected by the sensor corresponds to a position of the shaft in the interior of the cylinder.

Regarding claims 18-20, *Ejiri et al.* disclose (see Figs.) a method of measuring a position within a cylinder (housing; not labeled) defining an interior wherein the

cylinder has an interior surface and an exterior surface wherein the cylinder wherein the cylinder has a length defined between a first wall (12) and a second wall (left end wall; not labeled) wherein the cylinder has an aperture (for 9) formed in the first wall and further wherein the cylinder has a head (2 or 4) within the interior wherein the head is movable (capable of being moved) within the interior of the cylinder from the first wall to the second wall, comprising the steps of: directing light (with 9) into the interior through the aperture; attaching a light sensor (left most instance of 6) to the interior surface of the cylinder at the second wall wherein the light sensor is located within the interior of the cylinder and the head is located between the aperture and the light sensor; detecting an amount of light in the interior of the cylinder at the second wall which is not absorbed by the interior surface and the head of the cylinder wherein the light sensor detected the amount of light received from the aperture in the first wall; and determining a position of the head in the interior of the cylinder wherein the position of the head corresponds to the amount of light detected by the light sensor.

Independent Claim 18, as amended, requires the step of moving the head of the cylinder within the interior of the cylinder between the first wall and the second wall of the cylinder wherein the head of the cylinder moves linearly with respect to the second wall of the cylinder. Moreover, Claim 18 requires the step of determining a first position of the head in the interior of the cylinder with respect to the second wall of the cylinder.

Ejiri et al. merely teach a shaft position digitizer having a plurality of hollow shafts disposed along a center line. Further, *Ejiri et al.* teach that each of the shafts are hollow and connected continuously or intermittently by reduction gears. Moreover, *Ejiri et al.* teach that light from a single stationary source is

conducted through the interior of the shaft which is in a correct position.

Nowhere do *Ejiri et al.* disclose that the second end of the shaft moves between the first end of the cylinder and the second end of the cylinder within the interior of the cylinder as required by Claim 1. Further, nowhere do *Ejiri et al.* disclose that the second end of the shaft transposes the interior of the cylinder between the first and the second end of the cylinder as requires by Claim 1. Still further, nowhere do *Ejiri et al.* disclose that the second position of the second end of the shaft is located between the first position and the second wall at the second end of the cylinder as required by Claim 1. Moreover, nowhere do *Ejiri et al.* disclose that a distance between the second end of the shaft and the second wall corresponds to the intensity of light detected by the sensor at the second wall as required by Claim 1.

Nowhere do *Ejiri et al.* disclose the step of moving the head of the cylinder within the interior of the cylinder between the first wall and the second wall of the cylinder wherein the head of the cylinder moves linearly with respect to the second wall of the cylinder as required by Claim 18. Moreover, nowhere do *Ejiri et al.* disclose the step of determining a first position of the head in the interior of the cylinder with respect to the second wall of the cylinder as required by Claim 18.

On the contrary, *Ejiri et al.* merely teach that hollow shafts 1, 1a and 1b are supported rotatably on bearings 10, which in turn are supported at the centers of supports 11, 11a and 11b for the photosensitive elements 6. Further, *Ejiri et al.* teach the supports 11, 11a, and 11b, a lamp holder 12, a terminal plate 13, a cover 14 in combination form the rigid structure of the device.

Since *Ejiri et al.* fail to disclose the structural elements and novel steps as defined in amended independent Claims 1 and 18, respectively, Applicant asserts that the rejection of Claims 1-7 and 18-20 under 35 U.S.C. §102(b) has been overcome and should be withdrawn. Notice to that effect is requested.

In the Office Action, the Patent Office rejected Claims 9-12 and 14-16 under 35 U.S.C. §103(a) as being unpatentable over *Lewis* in view of *Abe et al.* More specifically, the Patent Office alleges:

Regarding 9-12 and 14-16, *Lewis* discloses (see Figs. 1 and 2) a system of monitoring position, comprising: a cylinder (24) having walls defining an interior wherein the cylinder has a shaft (18) within the interior wherein the shaft extends through a first wall (25) of the cylinder and wherein the shaft is moveable within the interior of the cylinder and further wherein the cylinder has an aperture (30) in the first wall adjacent to the shaft wherein light is continuously projected into the interior of the cylinder via the aperture; and a sensor (42, 43) on a second wall (27) of the cylinder wherein the first wall is opposite to the second wall, the sensor detects an amount of light within the cylinder at the second wall that is not absorbed by the shaft and further wherein the amount of light detected by the sensor corresponds to a position of the shaft within the interior of the cylinder. *Lewis* does not specifically disclose the sensor is located within the interior of the

cylinder and extends inward from the second wall. *Abe et al.* teach (see Fig. 1) a similar device in which the sensor (13) is located within a cylinder and extends inward from a second wall.

Independent Claim 9, as amended, requires that the shaft transposes through the cylinder and moves from the first wall to a second wall of the cylinder within the interior of the cylinder.

Abe et al. merely teach a manual optical rotary encoder. Further, *Abe et al.* teach an optical rotary encoder having a control pulse generator portion and a selector switch portion which are of the unitary construction. The control pulse generator generates a control pulse for operating a shaft to rotate at a desired speed. The control pulse is added to, or deducted from, a control signal to be fed to the motor and that enables a tape to travel at a speed which differs from that selected by the mode selector switch.

Neither *Lewis* nor *Abe et al.*, taken singly or in combination, teaches or suggests that the shaft transposes through the cylinder and moves from the first wall to a second wall of the cylinder within the interior of the cylinder as required by Claim 9. *Lewis* merely teaches that the disk is attached to a shaft and rotates with the shaft. *Abe et al.* merely teach that the shaft 16 is rotated to cause the click mechanism to achieve a click motion. Moreover, *Abe et al.* teach that the movable contact 22 is rotated with the upper base plate 21 to slide on the fixed contacts on the lower base plate 23.

Moreover, a person of ordinary skill in the art would never have been motivated to combine *Lewis* with *Abe et al.* in the manner suggested by the Patent Office in formulating the rejection under 35 U.S.C. §103(a). More specifically, Applicant submits that the Patent Office is merely "piece-mealing" references together, providing various teachings and positively defined limitations of Applicant's system for monitoring position to deprecate the claimed invention. Of course, hindsight reconstruction of Applicant's invention is impermissible. Accordingly, Applicant respectfully submits that independent Claim 9 distinctly defines the present invention from *Lewis* and *Abe et al.*

It is submitted that the question under §103 is whether the totality of the art would collectively suggest the claimed invention to one of ordinary skill in this art. In re Simon, 461 F.2d 1387, 174 USPQ 114 (CCPA 1972).

That elements, even distinguishing elements, are disclosed in the art is alone insufficient. It is common to find elements somewhere in the art. Moreover, most if not all elements perform their ordained and expected functions. The test is whether the invention as a whole, in light of all of the teachings of the references in their entireties, would have been obvious to one of ordinary skill in the art at the time the invention was made. Connell v. Sears, Roebuck & Co., 722 F.2d 1542, 220 USPQ 193 (Fed. Cir. 1983).

It is insufficient that the art disclosed components of Applicant's invention, either separately or used in other combinations. A teaching, suggestion, or incentive must exist to make the combination made by Applicant. Interconnect Planning Corp. v. Feil, 774 F.2d 1132, 1143, 227 USPQ 543, 551 (Fed. Cir. 1988).

With the analysis of the deficiencies of *Lewis* and *Abe et al.* in mind, as enumerated above, no reason or suggestion in the evidence of record exists why one of ordinary skill in the art would have been led to modify *Lewis* with *Abe et al.* to produce the claimed invention. Therefore, *prima facie* obviousness has not been established by the Patent Office as required under 35 U.S.C. §103. Accordingly, the rejections of Claims 9-12 and 14-16 have been overcome. Notice to that effect is requested.

With respect to the rejection of Claim 3 under 35 U.S.C. §103(a) as being unpatentable over *Lewis* in view of *Abe et al.* And *Horton et al.*, Applicant respectfully submits that the rejection has been overcome by the amendment to independent Claim 1 and for the reasons that follow.

In the Office Action, the Patent Office alleged that:

Regarding Claim 3, *Lewis* discloses the claimed invention as set forth above. *Lewis* does not specifically disclose as second shaft within the cylinder. *Horton et al.* teach (see Fig. 1) a similar device in which there are two shafts (at least 2, 4 and 6).

However, Claim 3 requires a second shaft within the cylinder. *Horton et al.* fail to teach or to suggest the novel structural

elements of the present invention which are not taught by *Lewis* as required by amended independent Claim 1 from which Claim 3 depends. Accordingly, the rejection of Claim 3 under 35 U.S.C. §103(a) has been overcome and should be withdrawn. Notice to that effect is requested.

With respect to the rejection of Claim 13 under 35 U.S.C. §103(a) as being unpatentable over *Lewis* in view of *Abe et al.* and further in view of *Horton et al.*, Applicant respectfully submits that the rejection has been overcome by the amendment to independent Claim 9 and for the reasons that follow.

In the Office Action, the Patent Office alleged that:

Regarding Claim 13, *Lewis* and *Abe et al.* disclose the claimed invention as set forth above. *Lewis* and *Abe et al.* do not specifically disclose a second shaft within the cylinder. *Horton et al.* teach (see Fig. 1) a similar device in which there are two shafts (at least 2, 4 and 6).

However, Claim 13 requires a second shaft within the cylinder wherein the second shaft is movable within the cylinder. *Horton et al.* fail to teach or to suggest the novel structural elements of the present invention which are not taught by *Lewis* and *Abe et al.*, taken singly or in combination, as required by amended independent Claim 9 from which Claim 13 depends. Accordingly, the rejection of Claim 13 under 35 U.S.C. §103(a) has been overcome and should be withdrawn. Notice to that effect is requested.

With respect to the rejection of Claim 17 under 35 U.S.C. §103(a) as being unpatentable over *Lewis* in view of *Abe et al.* and

Lee et al., Applicant respectfully submits that the rejection has been overcome by the amendment to independent Claim 9 and for the reasons that follow.

In the Office Action, the Patent Office alleged that:

Regarding Claim 17, *Lewis and Abe et al.* disclose the claimed invention as set forth above. *Lewis and Abe et al.* do not specifically disclose a coating on the shaft as claimed. *Lee et al.* teach (see Fig. 2) a coating a coating on a shaft for absorbing light.

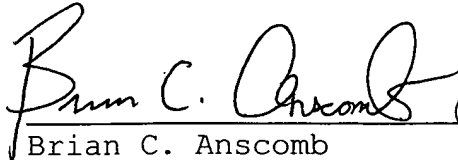
However, Claim 17 requires a coating on the shaft wherein the coating absorbs light. *Lee et al.* fail to teach or to suggest the novel structural elements of the present invention which are not taught by *Lewis and Abe et al.*, taken singly or in combination, as required by amended independent Claim 9 from which Claim 17 depends. Accordingly, the rejection of Claim 9 under 35 U.S.C. §103(a) has been overcome and should be withdrawn. Notice to that effect is requested.

Claims 2-7 depend from independent Claim 1; Claims 10-17 depend from independent Claim 9; and Claims 19-21 depend from independent Claim 18. These claims are further believed allowable over the references of record for the same reasons set forth with respect to their parent claims since each sets forth additional structural elements and novel steps of Applicant's invention.

In view of the foregoing remarks and the amendments, Applicant respectfully submits that Claim 1-7 and 9-23 of the application are in allowable form and that the application is now in condition for allowance. If any outstanding issues remain, Applicant urges the

Patent Office to telephone Applicant's attorney so that the same may be resolved and the application expedited to issue.

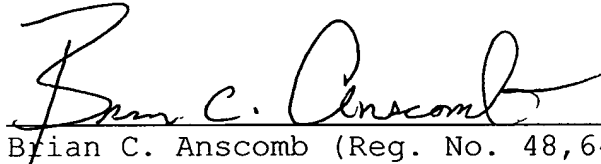
Respectfully submitted,

 (Reg. No. 48,641)

Brian C. Anscomb
ATTORNEY FOR APPLICANT
Patents+TMS
A Professional Corporation
2849 W. Armitage Ave.
Chicago, Illinois 60647
Telephone: (773) 772-6009

CERTIFICATE OF MAILING

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Brian C. Anscomb (Reg. No. 48,641)